

***FlyBy Math™* Alignment**
Arizona Mathematics Standard Articulated By Grade Level
High School

Strand 1: Number Sense and Operations

Concept 3: Estimation.

Use estimation strategies reasonably and fluently.

Standard	<i>FlyBy Math™</i> Activities
PO 1. Solve grade-level appropriate problems using estimation.	--Predict outcomes and explain results of mathematical models and experiments.
PO 2. Determine if a solution to a problem is reasonable.	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation. --Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.

Strand 2: Data Analysis, Probability, and Discrete Mathematics

Concept 1: Data Analysis (Statistics)

Understand and apply data collection, organization and representation to analyze and sort data.

Standard	<i>FlyBy Math™</i> Activities
PO 1. Formulate questions to collect data in contextual situations.	--Conduct a simulation of each airplane scenario
PO 2. Organize collected data into an appropriate graphical representation.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
PO 3. Display data as lists, tables, matrices, and plots.	--Represent distance, rate, and time data using line plots, bar graphs, and line graphs.
PO 4. Construct equivalent displays of the same data.	--Choose among tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
PO 7. Make reasonable predictions based upon linear patterns in data sets or scatter plots.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes. --Predict outcomes and explain results of mathematical models and experiments.
PO 8. Make reasonable predictions for a set of data, based on patterns.	--Predict outcomes and explain results of mathematical models and experiments.

PO 9. Draw inferences from charts, tables, graphs, plots, or data sets.	--Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.
PO 11. Evaluate the reasonableness of conclusions drawn from data analysis.	--Compare predictions, calculations, and experimental evidence for several aircraft conflict problems.

Strand 3: Patterns, Algebra, and Functions

Concept 2: Functions and Relationships

Describe and model functions and their relationships.

Standard	<i>FlyBy Math™</i> Activities
PO 2. Describe a contextual situation that is depicted by a given graph.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
PO 3. Identify a graph that models a given real-world situation.	--Use tables, bar graphs, line graphs, a Cartesian coordinate system, and equations to model aircraft conflicts and predict outcomes.
PO 4. Sketch a graph that models a given contextual situation.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
PO 7. Express the relationship between two variables using tables/matrices, equations, or graphs.	--Represent distance, speed, and time relationship for constant speed cases using tables, bar graphs, line graphs, equations, and a Cartesian coordinate system.
PO 8. Interpret the relationship between data suggested by tables/matrices, equations, or graphs.	--Use tables, bar graphs, line graphs, equations, and a Cartesian coordinate system to draw conclusions.

Concept 3: Algebraic Representations

Represent and analyze mathematical situations and structures using algebraic representations.

Standard	<i>FlyBy Math™</i> Activities
PO 6. Write a linear equation for a table of values.	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system.
PO 7. Write a linear algebraic sentence that represents a data set that models a contextual situation.	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system.

Concept 4: Analysis of Change

Analyze change in a variable over time and in various contexts.

Standard	<i>FlyBy Math™</i> Activities
PO 1. Determine slope, x-, and y-intercepts of a linear equation.	--Interpret the slope of a line in the context of a distance-rate-time problem. --Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system.
PO 2. Solve formulas for specified variables.	--Use the distance-rate-time formula to predict and analyze aircraft conflicts.

Strand 4: Geometry and Measurement**Concept 3: Coordinate Geometry**

Specify and describe spatial relationships using coordinate geometry and other representational systems.

Standard	<i>FlyBy Math™</i> Activities
PO 2. Graph a linear equation in two variables.	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system.
PO 6. Determine changes in the graph of a linear function when constants and coefficients in its equation are varied.	--Represent distance, speed, and time relationship for constant speed cases using linear equations and a Cartesian coordinate system. --Compare airspace scenarios for both the same and different starting conditions and the same and different rates.

Concept 4: Measurement - Units of Measure

Understand and apply appropriate units of measure, measurement techniques, and formulas to determine measurements.

Standard	<i>FlyBy Math™</i> Activities
PO 9. Solve scale factor problems using ratios and proportions.	--Calculate and measure the position and time of simulated aircraft. Represent that motion using tables, graphs, equations, and experimentation.